

Calendar

Fri., April 13

3:30 p.m.

DIRECTOR'S COFFEE

BREAK - 2nd Flr X-Over **4:00**

p.m.

Joint Experimental-Theoretical Physics Seminar - 1 West
Speaker: K. Desch, University of Bonn

Title: LHC ILC Interplay

Mon., April 16

8 a.m. - 6 p.m.

LoopFest VI - 1 West

2:30 p.m.

Particle Astrophysics Seminar - Curia II

Speaker: L. Strigari, University of California-Irvine

Title: Determining the Nature of Dark Matter with Astrometry

3:30 p.m.

DIRECTOR'S COFFEE

BREAK - 2nd Flr X-Over

4:00 p.m.

All Experimenters' Meeting - Curia II

Special Topic: Tevatron

Sextupole System

Modifications; Upgraded

Meson Test Beam

[Click here for NALCAL](#), a weekly calendar with links to additional information.

Weather



Partly cloudy 49°/31°

[Extended Forecast](#)

[Weather at Fermilab](#)

Current Security Status

[Secon Level 3](#)

Wilson Hall Cafe

Feature

Super-cool superconductors



From left: Allen Rusy, Tom Van Raes, Vito Lombardo and Daniele Turrioni make up the Fermilab Superconducting Research and Development Group, led by Emanuela Barzi.

Tom Van Raes stands behind his workbench in TD's Industrial Center building, surveying a six-foot-long cylindrical piece of metal wrapped with plastic and fitted into a vice. Pointing out the fine wires that wrap around a small tube in his hand, he demonstrates where the piece fits on the probe. "There aren't classes to learn how to do this," he says.

Van Raes is one of five members of the Superconductor Research and Development Group who test materials that redefine superconductivity. Superconductors can be everyday metals like aluminum, but when cooled below a critical temperature, their resistance drops suddenly to zero. The tiny wires on Van Raes' tube wind together to make cables hundreds of meters long and form huge magnets that bend high-energy beams and make particle colliders possible.

Led by Emanuela Barzi, the group tests the wires by mounting them on a probe and immersing them in a liquid helium cryostat the size of a large home furnace. After cooling the material -- typically a niobium-tin compound -- they measure its current at various magnetic fields. The goal is to increase the field beyond that presently required to operate the LHC, while maintaining high currents, said Daniele Turrioni, the group's lead engineer. Turrioni wrote the lab's data acquisition programs and supervised graduate student Vito Lombardo in his engineering thesis. The team serves the LHC Accelerator Research Program, the High Intensity Neutrino Source, and the ILC, and

ILC Newsline

Building prep almost complete for Fermilab's ILC Test Area



Fermilab is in the final stages of preparing the New Muon Laboratory for its newest tenant: a 60-meter-long accelerator for ILC R&D.

With a brand new floor and freshly cleaned out space, Fermilab's New Muon Laboratory is about to become the new home to a sixty-meter-long accelerator that will serve as a test area for ILC R&D. Until recently, the New Muon Laboratory housed the 2000-ton Chicago cyclotron magnet for more than 24 years. The newly renovated area will now be used to test cryomodules for the ILC with an electron beam.

A main section of the facility will be devoted to a 75-metre-long test cave that will house three cryomodules. Each 12-meter-long cryomodule will contain eight superconducting cavities in a vacuum-sealed container that will be cooled down to 1.8 degrees kelvin. Together, the three cryomodules plus the radio frequency (RF) power systems will make up one complete RF unit for ILC R&D. The facility will also contain a brand new control room and cryogenic system.

[Read more](#)

-- Elizabeth Clements

Special Announcement

Science Adventures

Children and families can learn about the science behind crime solving, space, the brain, electricity and more through Science

Friday, April 13

- Cream of wild mushroom
- Blackened fish filet sandwich
- Southern fried chicken
- Tuna casserole
- Eggplant parmesan panini
- Assorted sliced pizza
- Assorted sub sandwiches

[Wilson Hall Cafe Menu](#)

Chez Leon**Wednesday, April 18 Lunch**

- Southwest Cornish hen
- Chipotle sweet potatoes
- Vegetable of the season
- Poached pears w/ raspberry sauce

Thursday, April 19 Dinner

- Field greens w/ pears and shaved parmesan
- Chilean sea bass w/ white wine butter sauce
- Steamed asparagus
- Lemongrass rice
- Chocolate soufflé w/Amaretto crème anglais

[Chez Leon Menu](#)

Call x4598 to make your reservation.

Archives**Fermilab Today****Result of the Week****Safety Tip of the Week****ILC NewsLine****Info**

Fermilab Today is online at: www.fnal.gov/today/

Send comments and suggestions to: today@fnal.gov

their research helps manufacturers improve their superconductor performance.

Barzi says she loves the thrill of seeing applied results. "Superconductivity is an interface field," she said. "It's a perfect field to apply both engineering and physics."

Last year, the Director's Review of the Fermilab high field superconducting magnet program recognized the group as having the broadest and largest test capability of any U.S. laboratory. The group is most excited about a new probe, assembled by group administrator Allen Rusy, that would allow them to test whole superconducting cables at once. They hope to have a portion of the new probe finished this week. "It will make us the largest cable testing facility ever," said Barzi.

--Christine Buckley

Special Announcement**First edition of NewsLine Q**

NewsLine Q is a quarterly print publication for the broad scientific and academic communities who are interested in following the progress and activities of the International Linear Collider. Published by the Global Design Effort, NewsLine Q will report on the latest advancements for ILC research and development each quarter. Access NewsLine Q [online](#) or pick up a hard copy in the Office of Public Affairs.

ILC NewsLine Quarterly

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In the News**Scientific American April 12, 2007:****Experiment Nixes Fourth Neutrino**

The Standard Model of particle physics emerges unscathed—for now

The first results from a long anticipated experiment have heaped doubt on decade-old observations that hinted at the existence of a fourth type of neutrino, a ghostly particle that rarely interacts with ordinary matter. Researchers from the MiniBooNE experiment at the Fermi National Accelerator Laboratory in Batavia, Ill., announced the finding



Students learn about the invisible worlds of electricity and magnetism in the Dynamic Duo Science Adventure from instructors Dee Huie and Anne Mary Teichert.

Adventures classes at Fermilab. Offered during the months of June, July and August and on Saturdays during the school year, classes cover a variety of topics and are taught by experienced instructors.

Call 630-840-8258 to request a copy of the current brochure and add your name to the mailing list. Call 630-840-5588 with questions regarding registration.

The **Education Office** also has openings for instructors who wish to develop and teach these enrichment classes. Instructors may choose what they wish to teach and the target audience, students (pre K-8), or families. The instructor and program leader decide when and how often the adventure is offered. Interested instructions must fill out a class proposal form. For information contact Susan Dahl at 630-840-3094.

Announcements**Folk Club Barn Dance**

Fermilab Folk Club Barn Dance Sunday, April 15 at 2 p.m. with music by Genevieve & Smith and calling by Lynn. Find out more information at the [Folk Club web site](#).

Spring fling book fair

Check out the Book Fair on April 17 from 10 a. m. to 6 p.m., and April 18 from 7 a.m. to 3 p.m. in the Atrium. Children are graduating, weddings are being planned, birthdays are coming up and people are moving into new homes -- don't be unprepared. Proceeds from the book fair go toward subsidizing some of our Recreation programs. Tell your friends and family.

Perfect score

Congratulations to Junior Jones of TD, who bowled a perfect 300 game on April 10, his 60th birthday and the last night of play for the Fermilab Tuesday Night Mixed League at Valley Bowl in North Aurora. Jones also rolled a 300 earlier this season in another league.

Users' Office closings

The Users' Office will be closed on Thursday, April 19, and Friday, April 20. Please renew

yesterday.

Confirmation of the fourth neutrino would have given researchers a sign that something was wrong with their highly successful Standard Model, which describes the known particles. "We've all been waiting on pins and needles," says neutrino physicist Edward Kearns of Boston University, who works on other neutrino experiments. Seeing something new is always more exciting, he says, but "it's just extremely important that we get this out of the way and focus on other ideas."

[Read More](#)

IDs or contact the Users' Officer before the closing dates. To renew your ID while the office is closed, visit the Key & ID office for a visitor's pass and access card for site access and shift work. New employees may receive a visitor's pass only from the Key & ID office for site access. For car rentals, please contact Enrique Lopez at 847-707-3643 or 630-840-4037. In an emergency, you may contact Borys Jurkiw at 630-840-4363 or by [email](#).

LoopFest VI

Fermilab will host LoopFest VI from Monday, April 16 through Wednesday, April 18. The event is sponsored by Fermilab and by the American Linear Collider Physics Working Group on higher-order calculations at a future international linear e+e- Collider (ILC). LoopFest aims to provide a forum to coordinate activities focused on the theoretical challenges from the LHC and the ultra-high experimental precision of a future ILC. The LoopFest VI program is available [online](#).

Classifieds

New [classified ads](#) have been posted on *Fermilab Today*.

[Upcoming Activities](#)